

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

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U.S. PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte DONALD F. CALDWELL, KENNETH WARD CHURCH  
and GLENN STEPHEN FOWLER

Appeal No. 2004-1597  
Application No. 09/383,889<sup>1</sup>

ON BRIEF

Before GROSS, LEVY, and SAADAT, Administrative Patent Judges.  
SAADAT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection of claims 1-10, which are all of the claims pending in this application.

We affirm-in-part.

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<sup>1</sup> Application for patent filed August 26, 1999, which claims the filing priority benefit under 35 U.S.C. § 119 of the Provisional Application No. 60/111,781, filed December 10, 1998.

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BACKGROUND

Appellants' invention relates to data compression systems and methods in which data is transformed prior to compression in a manner that optimizes the applied compression techniques.

Representative independent claim 1 is reproduced as follows:

1. A method for improving compression of a stream of data comprising:

transforming the data in accordance with a schema; and  
compressing the transformed data.

The following reference is relied on by the Examiner:

Breternitz, Jr. et al.	6,216,213	Apr. 10, 2001
(Breternitz)		(filed Jun. 7, 1996)

Claims 1-5 and 7-10 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Breternitz.<sup>2</sup>

We make reference to the final Office action (Paper No. 6, mailed April 19, 2002) and to the answer (Paper No. 14, mailed September 8, 2003) for the Examiner's reasoning, and to the brief (Paper No. 13, filed July 23, 2003) for Appellants' arguments thereagainst.

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<sup>2</sup> The rejection of Claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Breternitz and Houldings is withdrawn by the Examiner (answer, page 8).

OPINION

At the outset, we note that Appellants indicate that claims 1, 2, 5, 7 and 8 stand or fall together as one group while claims 3, 4, 9 and 10 stand or fall as another group (brief, page 4). In accordance with this grouping, we will limit our review of the appeal to claims 1 and 3 as the representative claims of their respective groups.

Appellants argue that the claimed limitation of "transforming the data in accordance with a schema," as recited in independent claims 1 and 7, is defined at page 5, lines 19-21 of the specification, and requires "partitioning and reordering the data in a manner that optimizes the compression of the input data" (brief, page 5). Referring to Figures 1 and 2 of Breternitz, Appellants point out that the relied upon teachings actually relate to compressing instructions instead of data, to the pre-compression activity that is only of the conventional type and to segmenting the memory into blocks that is not partitioning and reordering the data (brief, page 7).

In response to Appellants' arguments, the Examiner asserts that the pre-compression activity of dividing the uncompressed code into blocks of Breternitz discloses the claimed transforming the data in accordance with a schema (answer, page 5). The

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Examiner further adds that the claims do not recite that "in accordance with a schema" requires "partitioning and reordering the data" (answer, page 6).

A rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference. In re Paulsen, 30 F.3d 1475, 1478-79, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994). See also Atlas Powder Co. v. Ireco Inc., 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999).

We observe that Breternitz relates to a method for compression and decompression of data in a system having a cache (col. 1, lines 6-8) and, as depicted in Figures 1 and 2, divided uncompressed code 20 into uncompressed cache line blocks 30 (col. 4, lines 30-33). Compression of the code is completed by compressing the individual blocks to create compressed code 40 (col. 5, lines 22-25). Therefore, the uncompressed data is divided into blocks or portions, wherein each block is later individually compressed to create the compressed data.

Based on the analysis above, we note that a determination of the issues on appeal before us turns on whether the claimed "transforming the data in accordance with a schema" reads on the dividing of the uncompressed code into cache line blocks of Breternitz. In other words, we must begin with a determination

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of the scope of the claim which must then be compared with the teachings of Breternitz in order to determine whether the claims are patentable over the prior art. Claim interpretation must begin with the language of the claim itself. See Smithkline Diagnostics, Inc. v. Helena Laboratories Corp., 859 F.2d 878, 882, 8 USPQ2d 1468, 1472 (Fed. Cir. 1988). For proper claim interpretation, the starting point must be the words of the claim which will be given their ordinary and accustomed meaning, unless it appears that the inventor used them differently. Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759, 221 USPQ 473, 477 (Fed. Cir. 1984). Furthermore, the terms used in the claims bear a "heavy presumption" that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art. Texas Digital Systems Inc. v. Telegenix Inc., 308 F.3d 1193, 1202, 64 USPQ2d 1812, 1817 (Fed. Cir. 2002), quoting CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366, 62 USPQ2d 1658, 1662 (Fed. Cir. 2002). Additionally, a court will give a claim term the full range of its ordinary meaning as understood by persons skilled in the relevant art, unless compelled otherwise. Texas Digital Systems, Inc., 308 F.3d at 1202, 64 USPQ2d at 1818. See also Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342, 60 USPQ2d 1851, 1854 (Fed. Cir. 2001).

As such, in determining the scope of claim 1, "We recognize that there is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification." Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186, 48 USPQ2d 1001, 1005 (Fed. Cir. 1998). In locating this "fine line" it is useful to remember that we look "to the specification to ascertain the meaning of the claim term as it is used by the inventor in the context of the entirety of his invention," and not merely to limit a claim term. Id. at 1187, 48 USPQ2d at 1005.

Relying on the words of the claim and based on the principles outlined above, we find that the claimed term "schema" generally relates to techniques, such as Gzip, (specification, page 3, line 6) or such as division of data into low entropy and high entropy portions (specification, page 3, lines 20-23), for compression of data. Furthermore, what Appellants refer to as the definition of "schema" as "partitioning and reordering the data" in page 5, although more specific, is also a generic technique for compression of data which requires merely dividing and arranging the data in a particular relational manner.<sup>3</sup> Other

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<sup>3</sup> Schema is defined as "a description of a database to the database management system (DBMS), generated using the data definition language provided by the DBMS....Regardless of context, however, a schema defines a  
(continued...)

disclosed embodiments describe a different and particular schema such as considering the entropy of the data (page 5) and row major order (page 7), which more specifically define how the data is "partitioned" and "reordered."

Therefore, we remain unconvinced by Appellants that "schema" defines anything more than a generic name for compression technique that involves some form of dividing and arranging the data. Attributing to "schema" the full range of its ordinary meaning as understood by skilled artisan and without importing limitations from the specification into the claim, the step of "transforming the data in accordance with a schema" reads on the step of dividing the uncompressed, unmodified codes into cache line blocks of Breternitz. Additionally, even if some form of partitioning and reordering are required in a "schema," the divided code is indeed, partitioned and reordered into blocks, which are later compressed. Even claim 2, which requires that the two portions be separately compressed, reads on the step of compressing individual cache line blocks of Breternitz (col. 5,

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<sup>3</sup>(...continued)  
particular view of some aspect of the database ...." Computer Dictionary, Microsoft Press, Second Edition, 1994.

Schema is also defined as "the structure of a database system, described in a formal language supported by the database management system (DBMS). In a relational database, the schema defines the tables, the fields in each table, and the relationships between fields and tables." Webopedia online encyclopedia, (<http://webopedia.com>), as modified June 21, 2002.

Copies of these two definitions accompany this decision.

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lines 22-25), as explained above. Accordingly, the 35 U.S.C. § 102(e) rejection of claims 1, 2, 5, 7 and 8 over Breternitz is sustained.

Turning now to claims 3, 4, 9 and 10, we note that these claims require that the transformation step includes the step of "reordering the data into column major order," which requires a different reordering than placing the data in cache line blocks of Breternitz. We agree with Appellants that dividing and reordering data in cache line blocks does not disclose that the data is necessarily reordered into column major order. The Examiner neither points to any specific teaching in the reference, other than to the part of Breternitz related to cached compression (col. 2, lines 40-52), nor do we find any, that would have taught or suggested the claimed features.

In view of the discussion above, we find that the claimed "the transformation step further comprises the step of reordering the data into column major order" is absent in the data compression method of Breternitz. Accordingly, since the Examiner has failed to meet the burden of providing a prima facie case of anticipation, the 35 U.S.C. § 102 rejection of claims 3, 4, 9 and 10 over Breternitz cannot be sustained.



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## CONCLUSION

In view of the foregoing, the decision of the Examiner to reject claims 1, 2, 5, 7 and 8 under 35 U.S.C. § 102 is affirmed, but is reversed with respect to claims 3, 4, 9 and 10.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

Anita Pellman Gross

ANITA PELLMAN GROSS  
Administrative Patent Judge

Thos. A. Henry

STUART S. LEVY  
Administrative Patent Judge

maximil D. Gaudat

MAHSHID D. SAADAT  
Administrative Patent Judge

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